Network Working Group
Request for Comments: 795

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SERVICE MAPPINGS

This memo describes the relationship between the Internet Protocol (IP) [1] Type of Service and the service parameters of specific networks.

The IP Type of Service has the following fields:

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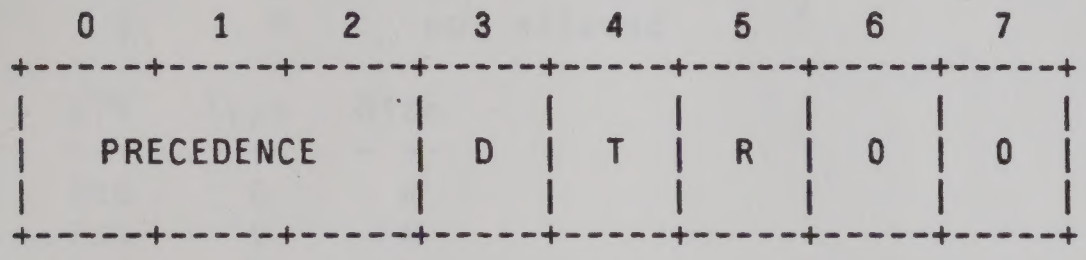
Bits 0-2:  Precedence.
Bit    3:  0 = Normal Delay,      1 = Low Delay.
Bits   4:  0 = Normal Throughput, 1 = High Throughput.
Bits   5:  0 = Normal Relibility, 1 = High Relibility.
Bit  6-7:  Reserved for Future Use.
```

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111 - Network Control
110 - Internetwork Control
101 - CRITIC/ECP
100 - Flash Override
011 - Flash
010 - Immediate
001 - Priority
000 - Routine
```

The individual networks listed here have very different and specific service choices.

AUTODIN II

The service choices are in two parts: Traffic Acceptance Catagories, and Application Type. The Traffic Acceptance Catagories can be mapped into and out of the IP TOS precedence reasonably directly. The Application types can be mapped into the remaining IP TOS fields as follows.

TA	DELAY	THROUGHPUT	RELIABILITY
I/A	1	0	0
Q/R	0	0	0
B1	0	1	0
B2	0	1	1

DTR	TA
000	Q/R
001	Q/R
010	B1
011	B2
100	I/A
101	I/A
110	I/A
111	error

ARPANET

The service choices are in quite limited. There is one priority bit that can be mapped to the high order bit of the IP TOS precedence. The other choices are to use the regular ("Type 0") messages vs. the uncontrolled ("Type 3") messages, or to use single packet vs. multipacket messages. The mapping of ARPANET parameters into IP TOS parameters can be as follows.

Type	Size	DELAY	THROUGHPUT	RELIABILITY
0	S	1	0	0
0	M	0	0	0
3	S	1	0	0
3	M	not allowed		

DTR	Type	Size
000	0	M
001	0	M
010	0	M
011	0	M
100	3	S
101	0	S
110	3	S
111	error	

PRNET

There is no priority indication. The two choices are to use the station routing vs. point-to-point routing, or to require acknowledgments vs. having no acknowledgments. The mapping of PRNET parameters into IP TOS parameters can be as follows.

Routing	Acks	DELAY	THROUGHPUT	RELIABILITY[c]
ptp	no	1	0	0
ptp	yes	1	0	1
station	no	0	0	0
station	yes	0	0	1

DTR	Routing	Acks
000	station	no
001	station	yes
010	station	no
011	station	yes
100	ptp	no
101	ptp	yes
110	ptp	no
111	ptp	yes

SATNET

There is no priority indication. The four choices are to use the block vs. stream type, to select one of four delay catagories, to select one of two holding time strategies, or to request one of three reliability levels. The mapping of SATNET parameters into IP TOS parameters can thus quite complex there being 2*4*2*3=48 distinct possibilities.

References

[1] Postel, J. (ed.), "Internet Protocol - DARPA Internet Program Protocol Specification," RFC 791, USC/Information Sciences Institute, September 1981.